

Creating Solutions Across Jurisdictional Boundaries

# St. Louis Regional Hazard Mitigation Plan City Questionnaire

| your contribution<br>Louis Regional H<br>step in ensuring | Thank you for filling out the information below. Not only does your contribution help EWG develop and maintain the St.  Louis Regional Hazard Mitigation Plan, but it is also a critical step in ensuring your city is eligible to apply for hazard mitigation grants. |  |  |  |  |
|---|--|--|--|--|--|
| and list everyon<br>three section<br>rankings, and 3      | ne questions below as completely as possible one who contributed information. There are ons: 1) jurisdiction information, 2) hazard mitigation strategies. All must be filled out tible for FEMA hazard mitigation funds.  |  |  |  |  |
| Questions? Ema  | il <u>hazardmit@ewgateway.org</u> or sign up for e hours' at   |  |  |  |  |
| https://www.ew  | gateway.org/hazardupdate/.   |  |  |  |  |
|   |  |  |  |  |  |
| Name(s) &<br>Title(s)                                     |  |  |  |  |  |
|   |  |  |  |  |  |
| City  |  |  |  |  |  |
| Contact name<br>and email                                 |  |  |  |  |  |
|   |  |  |  |  |  |

| 1. How many critical facilities are in the incorporated area of your city?  | Critical facilities = schools, hospitals, government buildings, railroads, highways            | Number   |                        |  |                     |              |
|---|--|--|------------------------|--|---------------------|--------------|
| 2. Please provide your city's property tax valuation/assessment for the most current year.  | Year   | Valuation  |                        |  |                     |              |
| 3. What are your cities expected development trends over the next 5 years? Please list expected development, housing, commercial, retail. | Example:<br>anticipate 5%<br>growth, stay<br>the same, or<br>decrease by<br>3%, etc.           | Why? (Example, new housing development, of major employer, etc.) |                        |  |                     | ment, loss   |
| 4. Please provide the year of your city's adopted building codes (if not all same year, please list each code with year)                  | Building code  | Plumbin Mechanica<br>g code code                                 |                        |  | Electric<br>code    | Fire<br>code |
| 5. Please provide the year your city anticipates adopting newer or current building codes and the code year.                              | Example, in<br>2024 City will<br>adopt the<br>2021<br>International<br>Building Code<br>(IBC). | Year   |                        |  |                     |              |
| 6. Has your city flooded in the past?   | Yes  | If yes, wha  | If yes, what years? No |  |                     |              |
| 7. What rivers/creeks border or run through your city?  | Please list:   |  |                        |  |                     |              |
| 8. Do you allow construction/development in your flood zone(s)?   | Yes  |  |                        |  | Explanat<br>needed: | ion if       |

| 9. How many critical facilities are in your flood zone(s)?                                   | Critical facilities = Schools, government buildings, rails bridges, and highways  | r:   |   |
|--|---|--|---|
| 10. Have structures in your city experienced repetitive losses due to flooding?              | Yes   | If yes, what years?  | No  |
| 11. Does your city have at-risk populations in flood zones or areas prone to flash flooding? | At risk populations = people without access to transportation, those who speak English as a second language or not at all, those living in poverty, people over 60 years, and persons of color. | If yes, please list<br>percent of total city<br>population | No  |
| 12. Does your city participate in the National Flood Insurance Program (NFIP)?               | Yes   | No   | If no, please<br>describe why<br>not and skip<br>to question<br>#17 |
| 13. Has your city adopted NFIP minimum floodplain management criteria via city ordinance?    | Yes   | No   | If no, please<br>describe why<br>not                                |
| 14. Has your city adopted the latest effective<br>Flood Insurance Rate Map (FIRM)?           | Yes   | No   | If no, please<br>describe why<br>not                                |

| 15. Has your city appointed a designee or agency<br>to implement the addressed commitments and<br>requirements of NFIP?  | Yes                               | No   | Please list designee or agency (title and/or department, do not list person by name) |  |  |
|--|-----------------------------------|--|--|--|--|
| 16. Please describe how your city implements the 'substantial improvement/substantial damage' provisions of your floodplain management regulations after a flooding event. |                                   |  |  |  |  |
| 17. Does your city have any sinkholes or areas of potential ground failure?  | Yes                               | If yes, how many?  | No, if no, please skip to #20  |  |  |
| 18. Are there any critical facilities in ground failure areas?   | Yes                               | If yes, how many?  | No   |  |  |
| 19. Does your city have at-risk populations in areas with potential ground failure?  | If yes, please list<br>population | percent of total city                                      | No   |  |  |
| 20. Does your city sit behind any levees?  | Yes                               | If yes, how many?  | No, if no, please skip to #23  |  |  |
| 21. Does your city have at-risk populations<br>behind levees?  | Yes                               | If yes, please list<br>percent of total<br>city population | No   |  |  |
| 22. Are there any critical facilities behind the levees?   | Yes                               | If yes, how many?  | No   |  |  |
| 23. Is your city located downstream/below any<br>high hazard potential dam*?   | Yes                               | If yes, how many?  | No, if no, please skip to #28  |  |  |
| 24. Are there any critical facilities below the high hazard potential dam(s)?  | Yes                               | No   | If yes, how many?  |  |  |

| 25. Does your city have at-risk populations downstream of high hazard potential dams?                                      | Yes             | If yes, please list percent of total city population |               |           | percer  |  |  | No |
|--|-----------------|--|---------------|-----------|---------|--|--|----|
| 26. Please describe if/how your city coordinates with local dam owner.   |                 |  |               |           |         |  |  |    |
| 27. If your city has a high hazard potential dam, please describe your coordination efforts with downstream jurisdictions. |                 |  |               |           |         |  |  |    |
| 28. Does your city have at-risk populations living in housing that may be vulnerable to tornadoes?                         | Yes             | es If yes<br>pleas<br>perce<br>total<br>popu         |               | No        |         |  |  |    |
| 29. Has your city completed any hazard mitigation activities/projects in the last 5 years?                                 | Yes             | No   | What          | projects? | Budget? |  |  |    |
| 30. Is your city currently receiving funds for hazard mitigation planning or projects?                                     | Yes, please lis | t what   | plans or proj | ects      | No      |  |  |    |

| 31. Does your city plan to apply for hazard mitigation grant funds in the next 5 years, and if so, for what kind of projects? | Yes   | No                         | What projects?                        | Approximate cost?      |
|---|---|----------------------------|---------------------------------------|------------------------|
| 32. How will your city incorporate the St. Louis Regional Hazard Mitigation Plan into your existing plans?                    | Example:<br>Emergency<br>Operations<br>Plan, Capital<br>Improvemen<br>Plan, Master<br>Plan, etc.  | <b>plan)</b><br>t          | e list which plans ( <mark>mus</mark> | t include at least one |
| 33. Please list your city's emergency capabilities  | Example: 35<br>firefighters, 2<br>police officer  |                            |                                       |                        |
| 34. Please list your city's emergency powers  | Example: ability to declare emergency, ability to ord evacuation, ability to declare curfew, etc. | er                         |                                       |                        |
| 35. Does your city have an emergency notification system (e.g. Code Red)?   | Yes   | If yes, plea<br>provide na |                                       | em                     |

| 36. Does your city have emergency alert sirens?   | Yes           | If yes, how many?  | No                                |
|---|---------------|--------------------|-----------------------------------|
| 37. What methods or mechanisms do you have available to communicate with your citizens for non-emergencies? (e.g., X, Facebook, bill inserts, email subscription, web page, etc.)   | Please list:  |                    |                                   |
| 38. Please list any mitigation strategies or additions to the St. Louis Regional Hazard Mitigation Plan not included in the Plan Goals and Mitigation Actions section that you would like considered for adoption in plan amendments or future plans. |               |                    |                                   |
| For flooding  |               |                    |                                   |
| For winter storms   |               |                    |                                   |
| For heat waves  |               |                    |                                   |
| For tornadoes   |               |                    |                                   |
| For drought   |               |                    |                                   |
| For earthquakes   |               |                    |                                   |
| For ground failure  |               |                    |                                   |
| For dam/levee failure   |               |                    |                                   |
| 39. What is the natural disaster most likely to most significantly impact your city and why? (can be more than one)   |               |                    |                                   |
| *High hazard notential dams are those dams that she   | auld thara ba | a failure there is | rick to human life. The Inventory |

Thank you for providing the above information! It is a key part in making your city eligible for hazard mitigation grant funding.

If you have any questions, please email <a href="mailto:hazardmit@ewgateway.org">hazardmit@ewgateway.org</a>.

To sign up for virtual office hours to discuss the questionnaire or something else related to hazard mitigation, visit <a href="https://www.ewgateway.org/hazardupdate/">https://www.ewgateway.org/hazardupdate/</a>.

<sup>\*</sup>High hazard potential dams are those dams that should there be a failure, there is risk to human life. The Inventory of dams can be found here - <a href="https://nid.sec.usace.army.mil/#/">https://nid.sec.usace.army.mil/#/</a>

# **Plan Goals and Mitigation Actions**

#### Please read before proceeding to hazard rankings and mitigation strategies.

The goals for the St. Louis Regional Hazard Mitigation Plan are as follows:

- 1. Prepare communities in advance of a natural disaster to prevent loss of life, minimize injury, and illness;
- 2. Preserve and maintain property, including public and private infrastructure, businesses, and individual homes, and improve community vitality; and
- 3. Encourage regional, county, and local planning and development that reduces future risk from natural disaster and is consistent with the hazard mitigation plan.

# Every city must choose at least one mitigation strategy per natural hazard regardless of whether your jurisdiction has that hazard.

| <ul><li>Tornadoes</li></ul>    | <ul><li>Winter Storms</li></ul>       | <ul><li>Flooding</li></ul>            |
|--------------------------------|---------------------------------------|---------------------------------------|
| <ul><li>Earthquakes</li></ul>  | <ul><li>Severe Thunderstorm</li></ul> | <ul><li>Dam / Levee Failure</li></ul> |
| <ul><li>Extreme Heat</li></ul> | <ul><li>Ground Failure</li></ul>      | <ul><li>Drought</li></ul>             |
| <ul><li>Wildfire</li></ul>     |                                       |                                       |

St. Louis Regional HMP goals are based on grant fundable measures. Although not all mitigation strategies listed below are fundable, most listed below meet those criteria.

#### 4.1 Mitigation Needed to Prepare for Tornadoes

- 1. Build safe rooms for schools, community centers, mobile home communities, critical municipal and infrastructure operations and require construction of safe rooms within new public buildings.
- 2. Develop and maintain early warning systems to target public and specific, vulnerable communities.
- 3. Retrofit one- and two-family residences and infrastructure and essential buildings.
- 4. Adopt current building codes and adopt ordinances to exceed minimum construction standards for high winds and develop ordinance to require underground utility lines in new developments.
- 5. Require anchoring of manufactured homes and exterior attachments and incorporate local inspections.
- 6. Create and improve early warning systems for tornado events including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc. and integrate communications systems to provide rapid communication and response.
- 7. Conduct risk assessments for tornado events.
- 8. Acquire necessary equipment, including generators, tree trimming equipment, and pumps, to secure lives and property.
- 9. Develop a plan for tornado mitigation.

# 4.2 Mitigation Needed to Prepare for Winter Storms

- 1. Create and support neighborhood initiatives for at risk populations, including, but not limited to elderly, unhoused, and those unable to afford their utility bills and establish relief centers and encourage the public and pets to use the centers.
- 2. Build new or retrofit existing structures for warming centers.
- 3. Ensure all-weather capabilities for emergency equipment.
- 4. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 5. Develop a plan for winter storm mitigation.

## 4.3 Mitigation Needed to Prepare for Extreme Heat

- 1. Create and support neighborhood initiatives for at risk populations, including, but not limited to elderly, unhoused, and those unable to afford their utility bills and establish relief centers and encourage the public and pets to use the centers.
- 2. Build new or retrofit existing structures for cooling centers.
- 3. Increase tree planting and enhance shade availability to mitigate heat impacts.
- 4. Enforce burn ordinances and audit water loss and incentivize water reuse.
- 5. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 6. Develop a plan for extreme heat mitigation.

### 4.4 Mitigation Needed to Prepare for Severe Thunderstorms

- 1. Regularly inspect and maintain storm drains and storm drainage systems to remove debris and blockages impeding stormwater flows.
- 2. Review and update building codes to reduce building damage.
- 3. Improve early warning systems and maintain integrated communications systems for rapid response.
- 4. Promote student, individual, and household preparation.
- 5. Create and/or improve early warning systems for severe thunderstorms, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc.
- 6. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 7. Develop a plan for severe thunderstorm mitigation.

#### 4.5 Mitigation Needed to Prepare for Floods

- 1. Protect stream buffers from development and create setback requirements along streams and encourage and/or engage in wetland restoration.
- 2. Join or maintain participating status in National Flood Insurance Program (NFIP) and adopt Floodplain Management Plans.
- 3. Reduce or eliminate development in floodplain and use green Infrastructure best management practices to manage stormwater where it falls in rain gardens, swales, detention ponds, and similar structures.
- 4. Buy out repetitive loss properties, retrofit or reconstruct infrastructure, and utilize structure elevation to reduce flooding impacts.
- 5. Removal of public structures from flood zones, use dry flood proofing for historic buildings, and dry flood proofing non-residential structures to reduce flood damage.
- 6. Use localized and non-localized flood risk reduction and soil stabilization for increased flood resiliency.
- 7. Use post-disaster code enforcement and implement NFIP Substantial improvement/substantial damage provisions.
- 8. Update floodplain and flash flood-prone area mapping and maintain list of flood prone structures.
- 9. Install backflow valves and sump pumps in critical facilities and perform storm drainage system maintenance.
- 10. Replace inadequate or non-performing culverts and maintain, replace, or improve other stormwater infrastructure, including storm drains.
- 11. Install and maintain pumping stations in levee systems.
- 12. Develop ordinances to require best management practices stormwater infrastructure design and construction, with long term maintenance provisions.
- 13. Create and improve early warning systems for floods, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc., and integrate communications systems to provide rapid communication and response.
- 14. Conduct risk assessments for floods.
- 15. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 16. Develop a plan for flood mitigation.

#### 4.6 Mitigation Needed to Address Risk of Failure in Dams and Levees

- 1. Encourage annual inspection of dams and levees.
- 2. Improve structural integrity of dams, using incentives where feasible.
- 3. Educate dam and levee owners about responsibilities and liabilities and develop and maintain emergency contact lists for levees.
- 4. Develop and implement dam/levee failure emergency action plans.
- 5. Create and improve early warning systems for dam / levee failures, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc.
- 6. Conduct risk assessments for dam / levee failures.
- 7. Develop a plan for dam / levee failure mitigation.

# 4.7 Mitigation Needed to Prepare for Earthquakes

- 1. Improve early warning systems.
- 2. Review and update building codes.
- 3. Maintain integrated communications systems for rapid response.
- 4. Promote student, individual, and household preparation.
- 5. Use infrastructure retrofit and structural and non-structural retrofit of existing buildings.
- 6. Adopt Seismic Construction Ordinance.
- 7. Create and improve early warning systems for earthquakes, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc.
- 8. Integrate communications systems to provide rapid communication and response.
- 9. Conduct risk assessments for earthquakes.
- 10. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 11. Develop a plan for earthquake mitigation.

### 4.8 Mitigation Needed to Prepare for Sinkhole / Ground Failure

- 1. Review new construction permit applications and reduce or eliminate construction in areas with undermined land or above highly soluble bedrock.
- 2. Map and assess vulnerable areas and stabilize when feasible.
- 3. Maintain a list of buildings constructed over underground mines.
- 4. Develop specially engineered resilient pipelines in areas subject to ground failures.
- 5. Develop / improve mining regulations.
- 6. Create and improve early warning systems for ground failures, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc.
- 7. Conduct risk assessments for ground failures.
- 8. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 9. Develop a plan for sinkhole / ground failure mitigation.

#### 4.9 Mitigation Needed to Prepare for Drought

- 1. Audit water loss and incentivize water reuse.
- 2. Repair, retrofit, and maintain water supply systems to minimize water loss.
- 3. Provide soil and water conservation practices education for farmers and/or public.
- 4. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 5. Develop a plan for drought mitigation.

## 4.10 Mitigation Needed to Prepare for Wildfire

- 1. Enforce open burn restrictions and burn ordinances.
- 2. Use vegetation management to reduce fuel loads.
- 3. Fire-resistant building retrofit.
- 4. Acquire necessary equipment, including generators, and pumps, to secure lives and property.
- 5. Develop a plan for Wildfire mitigation.

# St. Louis Regional Hazard Mitigation Plan Action Ranking Sheet

| Name(s):  | PRIORITY    |              | ACTION             |             |       |    |
|---|-------------|--------------|--------------------|-------------|-------|----|
| Title(s):   | Н-          | Hig          | ;h                 | O - Ongoing |       |    |
| City:   |             | M -<br>ediu  | Λ -<br>dium Comple |             | ete   |    |
| Date:   | L - Low     |              |                    | D -         | od    |    |
| ACTIONS   | Circ<br>(L, | le O<br>M, I |                    | Circ        | cle C | ne |
| 4.1 – Tornado   |             |              |                    |             |       |    |
| 1. Build safe rooms for schools, community centers, mobile home communities, critical municipal and infrastructure operations and require construction of safe rooms within new public buildings  | Н           | М            | L                  | o           | С     | D  |
| 2. Develop and maintain early warning systems to target public and specific, vulnerable communities   | Н           | М            | Т                  | 0           | С     | D  |
| 3. Retrofit one- and two-family residences and infrastructure and essential buildings   | Н           | М            | L                  | 0           | С     | D  |
| 4. Adopt current building codes and adopt ordinances to exceed minimum construction standards for high winds and develop ordinance to require underground utility lines in new developments   | Н           | М            | L                  | О           | С     | D  |
| 5. Require anchoring of manufactured homes and exterior attachments and incorporate local inspections   | Н           | М            | Г                  | 0           | С     | D  |
| 6. Create and improve early warning systems for tornado events including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc. and integrate communications systems to provide rapid communication and response            | Н           | М            |                    | 0           | С     | D  |
| 7. Conduct risk assessments for tornado events  | Н           | М            | L                  | 0           | С     | D  |
| 8. Acquire necessary equipment, including generators, tree trimming equipment, and pumps, to secure lives and property  | н           | М            | L                  | О           | С     | D  |
| 9. Develop a plan for tornado mitigation  | н           | М            | L                  | o           | С     | D  |
| 4.2 – Winter Storms   |             |              |                    |             |       |    |
| 1. Create and support neighborhood initiatives for at risk populations, including, but not limited to elderly, unhoused, and those unable to afford their utility bills and establish relief centers and encourage the public and pets to use the centers | Н           | М            | L                  | o           | С     | D  |
| 2. Ensure all-weather capabilities for emergency equipment  | Н           | М            | L                  | 0           | С     | D  |
| 3. Acquire necessary equipment, including generators, and pumps, to secure lives and property   | Н           | М            | L                  | 0           | С     | D  |
| 4. Develop a plan for winter storm mitigation   | Н           | M            | L                  | 0           | С     | D  |
| 4.3 – Extreme Heat  |             |              |                    |             |       |    |
| 1. Create and support neighborhood initiatives for at risk populations, including, but not limited to elderly, unhoused, and those unable to afford their utility bills and establish relief centers and encourage the public and pets to use the centers | Н           | М            | L                  | o           | С     | D  |

| 2. Increase tree planting and enhance shade availability to mitigate heat impacts   | н  | м | L | 0 | С | Ъ |
|---|----|---|---|---|---|---|
| 3. Enforce burn ordinances and audit water loss and incentivize water reuse   | Н  | М | L | 0 | С | D |
| 4. Repair, retrofit, and maintain water supply systems to minimize water loss   | Н  | М | L | 0 | С | D |
| 5. Provide soil and water conservation practices education for farmers  | Н  | М | L | 0 | С | D |
| 6. Acquire necessary equipment, including generators, and pumps, to secure lives and property   | Н  | М | L | 0 | С | D |
| 7. Develop a plan for extreme heat event mitigation   | Н  | М | L | 0 | С | D |
| 4.4 – Severe Thunderstorm   | •• |   | _ |   | · |   |
|   | ı  | 1 |   |   |   |   |
| 1. Regularly inspect and maintain storm drains and storm drainage systems to remove debris and blockages impeding stormwater flows  | н  | М | L | 0 | С | D |
| 2. Review and update building codes to reduce building damage   | Н  | М | L | 0 | С | D |
| 3. Improve early warning systems and maintain integrated communications systems for rapid response  | Н  | М | L | 0 | С | D |
| 4. Promote student, individual, and household preparation   | Н  | М | L | 0 | С | D |
| 5. Create and/or improve early warning systems for severe thunderstorms, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc.   | Н  | М | L | 0 | С | D |
| 6. Acquire necessary equipment, including generators, and pumps, to secure lives and property   | Н  | М | L | 0 | С | D |
| 7. Develop a plan for severe thunderstorms mitigation   | Н  | L | L | 0 | С | D |
| 4.5 – Flood   |    |   |   |   |   |   |
|   | ı  | 1 |   |   |   |   |
| 1. Protect stream buffers from development and create setback requirements along streams and encourage and/or engage in wetland restoration   | Н  | М | L | 0 | С | D |
| 2. Join or maintain participating status in National Flood Insurance Program (NFIP) and adopt Floodplain Management Plans   | н  | М | L | 0 | С | D |
| 3. Reduce or eliminate development in floodplain and use green Infrastructure best management practices   | Н  | м | L | 0 | С | D |
| to manage stormwater where it falls with rain gardens, swales, detention ponds, and related structures  4. Buy out repetitive loss properties, retrofit or reconstruct infrastructure, and utilize structure elevation to                 |    |   |   |   |   |   |
| reduce flooding impacts   | Н  | М | L | 0 | С | D |
| 5. Removal of public structures from flood zones, use dry flood proofing for historic buildings, and dry flood proofing non-residential structures to reduce flood damage   | Н  | М | L | 0 | С | D |
| 6. Use localized and non-localized flood risk reduction and soil stabilization for increased flood resiliency   | Н  | М | L | 0 | С | D |
| 7. Use post-disaster code enforcement and implement NFIP Substantial improvement/substantial damage provisions  | н  | М | L | 0 | С | D |
| 8. Update floodplain and flash flood-prone area mapping and maintain list of flood prone structures   | Н  | М | L | 0 | С | D |
| 9. Install backflow valves and sump pumps in critical facilities and perform storm drainage system maintenance  | н  | М | L | 0 | С | D |
| 10. Replace inadequate or non-performing culverts and maintain, replace, or improve other stormwater infrastructure, including storm drains   | н  | М | L | 0 | С | D |
| 11. Install and maintain pumping stations in levee systems  | Н  | М | L | 0 | С | D |
| 12. Develop ordinances to require best management practices stormwater infrastructure design and construction, with long term maintenance provisions  | н  | М | L | 0 | С | D |
| 13. Create and improve early warning systems for floods, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc., and integrate communications systems to provide rapid communication and response | н  | М | L | О | С | D |
| 14. Conduct risk assessments for floods   | Н  | М | L | 0 | С | D |
| 15. Acquire necessary equipment, including generators, and pumps, to secure lives and property  | Н  | М | L | 0 | С | D |
| 16.Develop a plan for flood mitigation  | Н  | М | L | 0 | С | D |
| 4.6 – Dam / Levee Failure   |    | • |   |   |   |   |
| Encourage annual inspection of dams and levees  | Н  | М | L | 0 | С | D |

| 2. Improve structural integrity of dams, using incentives where feasible   | Н | М | L | 0 | С        | D |
|--|---|---|---|---|----------|---|
| 3. Educate dam and levee owners about responsibilities and liabilities and develop and maintain  | Н | М | L | 0 | С        | D |
| emergency contact list for levees  |   |   |   |   |          |   |
| 4. Develop and implement dam/levee failure emergency action plans  | Н | M | L | 0 | С        | D |
| 5. Create and improve early warning systems for dam / levee failures, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc. | Н | M | L | 0 | С        | D |
| 6. Conduct risk assessments for dam / levee failures   | Н | М | L | 0 | С        | D |
| 7. Develop a plan for dam / levee failure mitigation   | Н | М | L | 0 | С        | D |
| 4.7 – Earthquake   |   |   |   |   |          |   |
| 1. Improve early warning systems   | Н | M | L | 0 | С        | D |
| 2. Review and update building codes  | Н | М | L | 0 | С        | D |
| 3. Maintain integrated communications systems for rapid response   | Η | M | L | 0 | С        | D |
| 4. Promote student, individual, and household preparation  | Н | М | L | 0 | С        | D |
| 5. Use infrastructure retrofit and structural and non-structural retrofit of existing buildings  | Η | M | L | 0 | С        | D |
| 6. Adopt Seismic Construction Ordinance  | Н | M | L | 0 | С        | D |
| 7. Create and improve early warning systems for earthquakes, including sirens, and targeted response such as Reverse 911, Code Red, Everbridge, Nixle, etc.          | Н | М | L | 0 | С        | D |
| 8. Integrate communications systems to provide rapid communication and response  | Н | М | L | 0 | С        | D |
| 9. Conduct risk assessments for earthquakes  | Н | М | L | 0 | С        | D |
| 10. Acquire necessary equipment, including generators, and pumps, to secure lives and property   | Н | М | L | 0 | С        | D |
| 11. Develop a plan for earthquake mitigation   | Н | М | L | 0 | С        | D |
| 4.8 – Sinkhole / Ground Failure  |   |   |   |   |          |   |
| 1. Review new construction permit applications and reduce or eliminate construction in areas with undermined land or above highly soluble bedrock                    | Н | М | L | 0 | С        | D |
| 2. Map and assess vulnerable areas and stabilize when feasible   | Н | М | L | 0 | С        | D |
| 3. Develop specially engineered resilient pipelines in areas subject to ground failures  | Н | M | L | 0 | С        | D |
| 4. Conduct risk assessments for ground failures  | Н | М | L | 0 | С        | D |
| 5. Acquire necessary equipment, including generators, and pumps, to secure lives and property  | Н | М | L | 0 | С        | D |
| 6. Develop a plan for sinkhole / ground failure mitigation   | Н | М | L | 0 | С        | D |
| 4.9 – Drought  |   |   |   |   |          |   |
| 1.Audit water loss and incentivize water reuse   | Н | М | L | 0 | С        | D |
| 2. Repair, retrofit, and maintain water supply systems to minimize water loss  | Н | М | L | 0 | С        | D |
| 3. Provide soil and water conservation practices education for farmers and/or public   | Н | М | L | 0 | С        | D |
| 4. Acquire necessary equipment, including generators, and pumps, to secure lives and property  | Н | М | L | 0 | С        | D |
| 5. Develop a plan for drought mitigation   | Н | М | L | 0 | С        | D |
| 4.10 – Wildfire  |   |   |   |   | L L      |   |
| 1. Enforce open burn restrictions and burn ordinances  | Н | М | L | 0 | С        | D |
| 2. Use vegetation management to reduce fuel loads  | Н | М | L | 0 | С        | D |
|  | Н | М | L | 0 | С        | D |
| 3. Fire-resistant building retrofit  |   |   |   |   | $\vdash$ |   |
| <ol> <li>Fire-resistant building retrofit</li> <li>Acquire necessary equipment, including generators, and pumps, to secure lives and property</li> </ol>             | Н | М | L | 0 | С        | D |

# **Mitigation Strategy Worksheets**

Submit at least one for each hazard (1 – 10); extra blank worksheets at end for additional actions.

List any current or planned hazard mitigation grant project as a mitigation action to remain eligible for funding.

FYI - To remain eligible for FEMA hazard mitigation funds, regardless of BRIC, FMA, or HMGP, your specific project mitigation strategy <u>must</u> be: 1) in the hazard mitigation plan in your jurisdiction's section that was in place when you submitted your NOI to SEMA, 2) when you submitted your full application materials, and 3) throughout the life of the grant.

See next page for a sample worksheet with instructive notes.

| EXAMPLI   | EXAMPLE Mitigation Action Worksheet with INSTRUCTIONS   |  |  |  |  |
|---|---|--|--|--|--|
| Name of Jurisdiction:   | City of Happy Trails  |  |  |  |  |
|   | Risk / Vulnerability  |  |  |  |  |
| Hazard Addressed: (one of the 10 listed, do not use unique wording)   | Flood   |  |  |  |  |
|   | Action or Project   |  |  |  |  |
| Applicable Goal Statement: (one of three listed at the beginning of the Plan Goals and Mitigation Actions section)                        | 1.Prepare communities in advance of a natural disaster to prevent loss of life, minimize injury, and illness  |  |  |  |  |
| Action/Project Number: (From the list of mitigation actions – must have 3 numbers)  | 4.7.4   |  |  |  |  |
| Name of Action or Project: (Be as specific as possible)   | Example Street Home Buyouts   |  |  |  |  |
| Action or Project Description: (Be specific)  | City of Happy Trails will buy out eight homes on Example Street and construct a detention pond/wetland on the location  |  |  |  |  |
| Estimated Cost: (Must be a reasonable estimate (or actual cost if existing project), can also be a range, if reasonable)                  | \$1,400,000 based on 2023 county appraisals   |  |  |  |  |
| Benefit versus Cost: (Must have a statement evaluating benefits vs. costs of project, does not have to be a full analysis)                | Project has a high cost but is expected to eliminate repetitive losses for eight properties in perpetuity, in addition to eliminating city emergency response costs for evacuations, monitoring abandoned properties, and related activities. |  |  |  |  |
|   | Plan for Implementation   |  |  |  |  |
| Responsible Organization/Department: (Must list responsible department(s) or staff position(s); just jurisdiction name is not sufficient) | Planning Department, Public Works, and Floodplain Manager/Administrator   |  |  |  |  |
| Supporting Organization/Department: (For additional departments or positions if needed)   | City Manager / Administration, Grant Accountant   |  |  |  |  |

| Action/Project Priority: (Should reflect same score as given in strategy rankings section)   | High   |  |
|--|--|--|
| Timeline for Completion: (If for existing grant or project, be specific; range is acceptable if grant funding is pending)  | 2027- 2030   |  |
| Potential/Existing Fund Sources:<br>(Funding sources must be specific.<br>Just "grant funding" is not<br>acceptable)   | FMA and/or BRIC. HMGP, if a flood disaster is declared; stormwater fee funds for the match |  |
| Local Planning Mechanisms to<br>be Used in Implementation, if<br>any: (List powers if needed for<br>project and/or ordinances,<br>specific plans, such as<br>Stormwater Master Plan)   | Repetitive loss ordinance, power to eminent domain   |  |
| Progress Report  |  |  |
| Action Status: (If current project, provide status; pending with explanation is acceptable; if project is funding dependent, can say so)   | Project pending grant funding  |  |
| Report of Progress: (If current project, 'awarded, pending funding; 50% complete, etc., if a planned project, '2026 anticipated start date' will work. For a theoretical project, N/A) | N/A  |  |

| Tornado Mitigation Action Worksheet                             |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Winter Storm Mitigation Action Worksheet                        |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Extreme Heat Mitigation Action Worksheet                        |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Severe Thunderstorm Mitigation Action Worksheet                 |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting<br>Organization/Department:                          |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Flood Mitigation Action Worksheet                               |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Flood Mitigation Action Worksheet (Extra)                       |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Dam / Levee Mitigation Action Worksheet                         |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| <b>Estimated Cost:</b>  |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting<br>Organization/Department:                          |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Earthquake Mitigation Action Worksheet                          |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Sinkhole / Ground Failure Mitigation Action Worksheet           |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Drought Mitigation Action Worksheet                             |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible<br>Organization/Department:                         |                      |  |
| Supporting Organization/Department:                             |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Wildfire Mitigation Action Worksheet                            |                      |  |
|---|----------------------|--|
| Name of Jurisdiction:   |                      |  |
|   | Risk / Vulnerability |  |
| Hazard(s) Addressed:  |                      |  |
| Action or Project   |                      |  |
| Applicable Goal Statement:                                      |                      |  |
| Action/Project Number:  |                      |  |
| Name of Action or Project:                                      |                      |  |
| Action or Project Description:                                  |                      |  |
| Estimated Cost:   |                      |  |
| Benefit versus Cost:  |                      |  |
| Plan for Implementation   |                      |  |
| Responsible Organization/Department:                            |                      |  |
| Supporting<br>Organization/Department:                          |                      |  |
| Action/Project Priority:  |                      |  |
| Timeline for Completion:  |                      |  |
| Potential/Existing Fund Sources:                                |                      |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |                      |  |
| Progress Report   |                      |  |
| Action Status:  |                      |  |
| Report of Progress:   |                      |  |

| Mitigation Action Worksheet                                     |  |
|---|--|
| Name of Jurisdiction:   |  |
| Risk / Vulnerability  |  |
| Hazard(s) Addressed:  |  |
| Action or Project   |  |
| Applicable Goal Statement:                                      |  |
| Action/Project Number:  |  |
| Name of Action or Project:                                      |  |
| Action or Project Description:                                  |  |
| Estimated Cost:   |  |
| Benefit versus Cost:  |  |
| Plan for Implementation   |  |
| Responsible<br>Organization/Department:                         |  |
| Supporting Organization/Department:                             |  |
| Action/Project Priority:  |  |
| Timeline for Completion:  |  |
| Potential/Existing Fund Sources:                                |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |  |
| Progress Report   |  |
| Action Status:  |  |
| Report of Progress:   |  |

|   | Mitigation Action Worksheet |
|---|-----------------------------|
| Name of Jurisdiction:   |                             |
| Risk / Vulnerability  |                             |
| Hazard(s) Addressed:  |                             |
| Action or Project   |                             |
| Applicable Goal Statement:                                      |                             |
| Action/Project Number:  |                             |
| Name of Action or Project:                                      |                             |
| Action or Project Description:                                  |                             |
| Estimated Cost:   |                             |
| Benefit versus Cost:  |                             |
| Plan for Implementation   |                             |
| Responsible<br>Organization/Department:                         |                             |
| Supporting Organization/Department:                             |                             |
| Action/Project Priority:  |                             |
| Timeline for Completion:  |                             |
| Potential/Existing Fund Sources:                                |                             |
| Local Planning Mechanisms to be Used in Implementation, if any: |                             |
| Progress Report   |                             |
| Action Status:  |                             |
| Report of Progress:   |                             |

| Mitigation Action Worksheet                                     |  |
|---|--|
| Name of Jurisdiction:   |  |
| Risk / Vulnerability  |  |
| Hazard(s) Addressed:  |  |
| Action or Project   |  |
| Applicable Goal Statement:                                      |  |
| Action/Project Number:  |  |
| Name of Action or Project:                                      |  |
| Action or Project Description:                                  |  |
| <b>Estimated Cost:</b>  |  |
| Benefit versus Cost:  |  |
| Plan for Implementation   |  |
| Responsible Organization/Department:                            |  |
| Supporting Organization/Department:                             |  |
| Action/Project Priority:  |  |
| Timeline for Completion:  |  |
| Potential/Existing Fund Sources:                                |  |
| Local Planning Mechanisms to be Used in Implementation, if any: |  |
| Progress Report   |  |
| Action Status:  |  |
| Report of Progress:   |  |

If you need additional mitigation action sheets, please email <a href="mailto:hazardmit@ewgateway.org">hazardmit@ewgateway.org</a>.